

# Iowa Initiative for Artificial Intelligence

## Final Report

Project title:	<b>Developing Innovative Measures to Study Reputation Management</b>		
Principal Investigator:	Ion Bogdan Vasi		
Prepared by (IIAI):	Kang P Lee		
Other investigators:	Bradley Mecham		
Date:	11.01.20		
Were specific aims fulfilled:	Yes		
Readiness for extramural proposal?	Yes		
If yes ... Planned submission date	August 2020		
Funding agency	NSF		
Grant mechanism	Decision, Risk & Management Science		
If no ... Why not? What went wrong?			

### **Brief summary of accomplished results:**

We submitted a grant proposal to the Decision, Risk & Management Science division of NSF in August 2020. (see below)

### **Research report:**

#### **Aims (provided by PI):**

Our proposed project has three main goals: first, to develop a large and comprehensive dataset of corporate communication by both U.S. and international companies; second, to use the corporate communication dataset to develop methodology and construct new measures of reputation management; and third, to test hypotheses about the determinants of reputation management in both the U.S. and global contexts.

#### **Data:**

We collected data from 22 large companies in the oil and gas industry from around the world (over 22,440 press releases and 308 CSR reports).

#### **AI/ML Approach:**

We used topic modeling and dictionary analyses. In the future we will use ML approach to improve the accuracy of the dictionary analyses.

#### **Experimental methods, validation approach:**

We did not use experimental methods.

#### **Results:**

We conducted a pilot research project during the 2019-2020 academic year. We used automated text analysis to construct several new measures that show significant differences among companies in how they manage their reputations and communicate their CSR activities.

**Ideas/aims for future extramural project:**

We already submitted the NSF grant application (August 2020).

**Publications resulting from project:**

We plan to submit a paper titled “How Organizations Engage in Reputation Management Through Communication of Corporate Social Responsibility Activities: Lessons from the Oil and Gas Industry” before the end of 2020 to *Academy of Management Discoveries*.

## COVER SHEET FOR PROPOSAL TO THE NATIONAL SCIENCE FOUNDATION

PROGRAM ANNOUNCEMENT/SOLICITATION NO./DUE DATE <b>PD 98-1321</b> <b>08/18/20</b>		<input type="checkbox"/> Special Exception to Deadline Date Policy		<b>FOR NSF USE ONLY</b>	
FOR CONSIDERATION BY NSF ORGANIZATION UNIT(S) (Indicate the most specific unit known, i.e. program, division, etc.) <b>SES - Decision, Risk &amp; Mgmt Sci</b>				<b>NSF PROPOSAL NUMBER</b>	
DATE RECEIVED	NUMBER OF COPIES	DIVISION ASSIGNED	FUND CODE	DUNS# (Data Universal Numbering System)	FILE LOCATION
				<b>062761671</b>	
EMPLOYER IDENTIFICATION NUMBER (EIN) OR TAXPAYER IDENTIFICATION NUMBER (TIN) <b>426004813</b>		SHOW PREVIOUS AWARD NO. IF THIS IS <input type="checkbox"/> A RENEWAL <input type="checkbox"/> AN ACCOMPLISHMENT-BASED RENEWAL		IS THIS PROPOSAL BEING SUBMITTED TO ANOTHER FEDERAL AGENCY? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> IF YES, LIST ACRONYM(S)	
NAME OF ORGANIZATION TO WHICH AWARD SHOULD BE MADE <b>University of Iowa</b>		ADDRESS OF AWARDEE ORGANIZATION, INCLUDING 9 DIGIT ZIP CODE <b>University of Iowa 2 GILMORE HALL IOWA CITY, IA.522421320</b>			
AWARDEE ORGANIZATION CODE (IF KNOWN) <b>0018929000</b>					
NAME OF PRIMARY PLACE OF PERF <b>The University of Iowa</b>		ADDRESS OF PRIMARY PLACE OF PERF, INCLUDING 9 DIGIT ZIP CODE <b>The University of Iowa 108 Pappajohn Business Building Iowa City ,IA ,522421994 ,US.</b>			
IS AWARDEE ORGANIZATION (Check All That Apply)		<input type="checkbox"/> SMALL BUSINESS	<input type="checkbox"/> MINORITY BUSINESS	<input type="checkbox"/> IF THIS IS A PRELIMINARY PROPOSAL THEN CHECK HERE	
		<input type="checkbox"/> FOR-PROFIT ORGANIZATION	<input type="checkbox"/> WOMAN-OWNED BUSINESS		
TITLE OF PROPOSED PROJECT <b>Developing Innovative Measures to Study Reputation Management</b>					
REQUESTED AMOUNT \$ <b>349,541</b>	PROPOSED DURATION (1-60 MONTHS) <b>36</b> months	REQUESTED STARTING DATE <b>01/04/21</b>	SHOW RELATED PRELIMINARY PROPOSAL NO. IF APPLICABLE		
THIS PROPOSAL INCLUDES ANY OF THE ITEMS LISTED BELOW					
<input type="checkbox"/> BEGINNING INVESTIGATOR		<input type="checkbox"/> HUMAN SUBJECTS Human Subjects Assurance Number _____			
<input type="checkbox"/> DISCLOSURE OF LOBBYING ACTIVITIES		Exemption Subsection _____ or IRB App. Date _____			
<input type="checkbox"/> PROPRIETARY & PRIVILEGED INFORMATION		<input type="checkbox"/> FUNDING OF INT'L BRANCH CAMPUS OF U.S. IHE		<input type="checkbox"/> FUNDING OF FOREIGN ORG	
<input type="checkbox"/> HISTORIC PLACES		<input type="checkbox"/> INTERNATIONAL ACTIVITIES: COUNTRY/COUNTRIES INVOLVED _____			
<input type="checkbox"/> VERTEBRATE ANIMALS IACUC App. Date _____		PHS Animal Welfare Assurance Number _____			
<input checked="" type="checkbox"/> TYPE OF PROPOSAL <b>Research</b>		<input checked="" type="checkbox"/> COLLABORATIVE STATUS <b>Not a collaborative proposal</b>			
PI/PD DEPARTMENT <b>Sociology</b>		PI/PD POSTAL ADDRESS <b>2 GILMORE HALL IOWA CITY, IA 522421320 United States</b>			
PI/PD FAX NUMBER					
NAMES (TYPED)	High Degree	Yr of Degree	Telephone Number	Email Address	
PI/PD NAME <b>Ion Vasi</b>	<b>PhD</b>	<b>2005</b>	<b>319-335-2484</b>	<b>ion-vasi@uiowa.edu</b>	
CO-PI/PD <b>Kang P Lee</b>	<b>PhD</b>	<b>2012</b>	<b>319-384-1205</b>	<b>kangpyo-lee@uiowa.edu</b>	
CO-PI/PD					
CO-PI/PD					
CO-PI/PD					

## CERTIFICATION PAGE

### Certification for Authorized Organizational Representative (or Equivalent)

By electronically signing and submitting this proposal, the Authorized Organizational Representative (AOR) is: (1) certifying that statements made herein are true and complete to the best of his/her knowledge; and (2) agreeing to accept the obligation to comply with NSF award terms and conditions if an award is made as a result of this application. Further, the applicant is hereby providing certifications regarding conflict of interest (when applicable), flood hazard insurance (when applicable), responsible conduct of research and organizational support as set forth in the NSF Proposal & Award Policies & Procedures Guide (PAPPG). Willful provision of false information in this application and its supporting documents or in reports required under an ensuing award is a criminal offense (U.S. Code, Title 18, Section 1001).

### Certification Regarding Conflict of Interest

The AOR is required to complete certifications stating that the organization has implemented and is enforcing a written policy on conflicts of interest (COI), consistent with the provisions of PAPPG Chapter IX.A.; that, to the best of his/her knowledge, all financial disclosures required by the conflict of interest policy were made; and that conflicts of interest, if any, were, or prior to the organization's expenditure of any funds under the award, will be, satisfactorily managed, reduced or eliminated in accordance with the organization's conflict of interest policy. Conflicts that cannot be satisfactorily managed, reduced or eliminated and research that proceeds without the imposition of conditions or restrictions when a conflict of interest exists, must be disclosed to NSF via use of the Notifications and Requests Module in FastLane.

### Certification Regarding Flood Hazard Insurance

Two sections of the National Flood Insurance Act of 1968 (42 USC §4012a and §4106) bar Federal agencies from giving financial assistance for acquisition or construction purposes in any area identified by the Federal Emergency Management Agency (FEMA) as having special flood hazards unless the:

- (1) community in which that area is located participates in the national flood insurance program; and
- (2) building (and any related equipment) is covered by adequate flood insurance.

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) located in FEMA-designated special flood hazard areas is certifying that adequate flood insurance has been or will be obtained in the following situations:

- (1) for NSF grants for the construction of a building or facility, regardless of the dollar amount of the grant; and
- (2) for other NSF grants when more than \$25,000 has been budgeted in the proposal for repair, alteration or improvement (construction) of a building or facility.

### Certification Regarding Responsible Conduct of Research (RCR)

**(This certification is not applicable to proposals for conferences, symposia, and workshops.)**

By electronically signing the Certification Pages, the Authorized Organizational Representative is certifying that, in accordance with the NSF Proposal & Award Policies & Procedures Guide, Chapter IX.B., the institution has a plan in place to provide appropriate training and oversight in the responsible and ethical conduct of research to undergraduates, graduate students and postdoctoral researchers who will be supported by NSF to conduct research. The AOR shall require that the language of this certification be included in any award documents for all subawards at all tiers.

### Certification Regarding Organizational Support

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) is certifying that there is organizational support for the proposal as required by Section 526 of the America COMPETES Reauthorization Act of 2010. This support extends to the portion of the proposal developed to satisfy the Broader Impacts Review Criterion as well as the Intellectual Merit Review Criterion, and any additional review criteria specified in the solicitation. Organizational support will be made available, as described in the proposal, in order to address the broader impacts and intellectual merit activities to be undertaken.

### Certification Regarding Dual Use Research of Concern

By electronically signing the certification pages, the Authorized Organizational Representative is certifying that the organization will be or is in compliance with all aspects of the United States Government Policy for Institutional Oversight of Life Sciences Dual Use Research of Concern.

AUTHORIZED ORGANIZATIONAL REPRESENTATIVE		SIGNATURE	DATE
NAME			
TELEPHONE NUMBER	EMAIL ADDRESS	FAX NUMBER	

## PROJECT SUMMARY

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### **Overview:**

Reputation and image management efforts are crucial in the contemporary context because organizations deal with increasingly complex and turbulent environments. Yet, researchers interested in organizational reputation and image management lack access to quality data and appropriate measures to analyze it. We propose to gather such data, to develop innovative measures researchers can use to study how organizations engage in reputation management, and to examine various factors that shape reputation management. Our proposed project, therefore, has three main goals: first, to develop a large and comprehensive dataset of corporate communication by both U.S. and international companies; second, to use the corporate communication dataset to develop methodology and construct new measures of reputation management; and third, to test hypotheses about the determinants of reputation management in both the U.S. and global contexts.

### **Intellectual Merit:**

Organizations spend considerable resources on reputation management, in part because spoiled organizational reputation can have significant negative consequences. Despite companies' sustained efforts to merit approval, decades of exposed business corruption have resulted in dramatic declines in public trust in business, and single negative events can quickly lead to damaged corporate reputation. To improve their reputations, most companies engage in periodic communication with stakeholders through weekly or monthly press releases. Additionally, a growing number of companies are adopting corporate social responsibility (CSR) activities that are publicized in annual reports. Given this rapidly-growing corpus of communication, it becomes increasingly important that researchers develop tools for measuring and analyzing these reputation management efforts. Unfortunately, current measures of reputation, such as Fortune magazine's survey of America's Most Admired Corporations, are inadequate for rigorous research on reputation management. To demonstrate the feasibility of collecting data and developing innovative measures to study reputation management, the PI and his collaborators conducted a pilot research project during the 2019-2020 academic year. We collected data from 22 large companies in the oil and gas industry from around the world (over 22,440 press releases and 308 CSR reports). The researchers used automated text analysis to construct several new measures that show significant differences among these companies in how they manage their reputations and communicate their CSR activities. The proposed research will build upon the pilot project and collect data from U.S. and global Fortune 1000 companies. The research will also create new measures of reputation management by applying automated text analysis methods to the collected data. The PI and his collaborators will then use the new measures to test hypotheses about various factors that shape reputation management in both U.S. and global contexts. For example, the researchers will investigate how firms' reputation management strategies are influenced by 1) the social, political, and cultural contexts in which firms are embedded, and 2) exogenous events such as the COVID-19 pandemic. Finally, the research will open the door for work by many others interested in organizational decision making, risk management, and communication.

### **Broader Impacts:**

This research advances scholarship in organizational communication, risk management, and decision making. Both the dataset for corporate communication and the new measures of reputation management will be available to scholars through the website of the Tippie College of Business at the University of Iowa. Additionally, two papers that examine corporate reputation management will be submitted for publication in top management journals. This work has the potential to help inform policy makers and stakeholders who seek to encourage organizations to increase their corporate social responsibility activities and improve transparency in reputation management. Funds for this research will support at least one PhD student and one researcher with the Iowa Initiative for Artificial Intelligence. Results from this work will be disseminated through articles in journals and conference presentations.

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For font size and page formatting specifications, see PAPPG section II.B.2.

	<b>Total No. of Pages</b>	<b>Page No.* (Optional)*</b>
Cover Sheet for Proposal to the National Science Foundation		
Project Summary (not to exceed 1 page)	1	_____
Table of Contents	1	_____
Project Description (Including Results from Prior NSF Support) (not to exceed 15 pages) <b>(Exceed only if allowed by a     specific program announcement/solicitation or if approved in     advance by the appropriate NSF Assistant Director or designee)</b>	15	_____
References Cited	5	_____
Biographical Sketches (Not to exceed 2 pages each)	4	_____
Budget (Plus up to 3 pages of budget justification)	5	_____
Current and Pending Support	2	_____
Facilities, Equipment and Other Resources	2	_____
Special Information/Supplementary Documents (Data Management Plan, Mentoring Plan and Other Supplementary Documents)	2	_____
Appendix (List below. ) <b>(Include only if allowed by a specific program announcement/     solicitation or if approved in advance by the appropriate NSF     Assistant Director or designee)</b>	_____	_____
Appendix Items:		

\*Proposers may select any numbering mechanism for the proposal. The entire proposal however, must be paginated. Complete both columns only if the proposal is numbered consecutively.

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